

# ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH.  
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Dear Sir:

Study of space vehicle propulsion through controlled nuclear pulses will continue at General Atomic division of General Dynamics Corp., under recent renewal of GA's contract with Defense Department's advanced research projects agency. The research and development program, known as project Orion, at GA's San Diego, Calif., laboratory has been underway there since July 1958. The renewal provides \$1 million for a 12-month continuation starting September 1, 1959, of these feasibility studies. (Other CONTRACT NEWS, p. 3 this LETTER.)

Net assets of \$62,663,938 were reported last week by Atomic Development Mutual Fund, Inc., Washington, D.C., for the end of its fiscal year June 30, 1959. This was equivalent to \$5.69 a share on the 10,993,718 common shares outstanding at that time. It compared with \$51,387,042 or \$4.61 a share on 11,138,327 shares outstanding a year earlier. The Fund noted acceleration of business and profits in the U.S. radiation instrument industry, shares of which it holds. Its portfolio of Canadian uranium producers remains depressed, management said. (Other FINANCIAL NEWS, p. 2 this LETTER.)

The uranium mining and milling industry of Canada may face a world surplus of the metal in 1963, according to a report prepared by S. W. Clarkson, economist, for Atomic Energy of Canada, Ltd. Mr. Clarkson urged that Canada's mines get an early decision from the U. S. on the possibility of post-1962 purchases of Canadian uranium. Noting that U. S. contracts with Canadian producers expire in 1962, Mr. Clarkson observed that there was at present very little indication of firm sales contracts for 1963 and the following years. When U. S. contracts expire, Canada may be able to market elsewhere about one-half its current output of 13,500 tons per year of uranium oxide, he estimated. (Other BUSINESS NEWS, p. 2 this LETTER.)

Now onstream at Spencer Chemical Co.'s Jayhawk Works, near Pittsburg, Kansas, is the firm's 100,000-lbs. per year uranium dioxide nuclear fuel plant. Low enrichment (5% or less) uranium dioxide will be processed at the plant. For more highly enriched materials, a smaller plant will be used. Uranium hexafluoride; uranium ore concentrates; and scrap uranium dioxide from fuel fabrication jobs are typical feedstocks. (Other PRODUCT, PROCESS, INSTRUMENT NEWS, p. 4 this LETTER.)

Design, development and prototype construction of a natural circulation, pressurized water reactor plant for naval ship applications will be done at the USAEC's Knolls Atomic Power Laboratory, Schenectady, N.Y., the Commission has decided. General Electric Co. is contract operator of Knolls. Some \$18,500,000 for construction of this plant has been allocated in the USAEC's budget for fiscal 1960, as recently approved by Congress. (Promise of an improvement in the field of pressurized water reactors for naval ship propulsion is offered by the natural circulation concept. By using natural convection to circulate the reactor cooling water, the need for large circulating pumps and associated electrical generating and control equipment is eliminated.) (Other MANUFACTURERS' NEWS, p. 4 this LETTER.)

### ATOMIC ENERGY FINANCIAL NEWS...

STOCK DIVIDEND DECLARED: A 5% stock dividend is being paid Sept. 25, 1959 by Nuclear-Chicago Corp., Des Plaines, Ill., to stockholders of record Sept. 4, 1959. Sales and profits of the company, for the fiscal year ended Aug. 31, 1959, will show increases over last year to new highs, according to J. M. Phelan, president and chairman. The company now has 657,124 shares of \$1 par value common stock outstanding.

MERGER POSTPONED: Negotiations on a proposed merger between Tenney Engineering, Inc., and Victoreen Instrument Co., have been deferred by directors of the companies. Tenney, a Union, N.J., maker of environmental test equipment and Victoreen, manufacturer of radiation monitoring and control equipment, had planned the merger on the basis of eight-tenths of a share of Victoreen stock being exchanged for one share of Tenney stock. (Victoreen recently acquired a manufacturer of photographic equipment; Tenney wants firms that supplement its line. These divergent ideas on acquisitions are believed to have resulted in the postponement of the merger.)

LOSS BY URANIUM MINING & PROCESSING FIRM: Homestake-Sapin Partners, the uranium mining and processing partnership of Homestake Mining Co., and Sabre Pinon Corp., had net loss of \$337,943 on total revenues of \$11,927,752 in its first 11 months of production according to Sabre Pinon's annual report to stockholders. For the three months ending June 30, 1959 however, revenues of Homestake-Sapin Partners exceeded costs by \$552,801 compared with a deficit of \$890,744 for the period from Aug. 1, 1958, when production began, until Mar. 31, 1959, the end of the partnership's fiscal year. Losses were due to metallurgical and mining difficulties, according to R. D. Bokum II, president of Sabre Pinon. (Sabre Pinon, a limited partner, owns 75% of Homestake Sapin Partners, and Homestake, the general partner, owns 25%.)

ACCELERATOR MANUFACTURER IN NEW FINANCING: Radiation Dynamics, Inc., Westbury, L.I., N.Y., has filed with the SEC for registration of 25,000 shares of common stock. The company will offer its stockholders the right to subscribe to 11,325 shares at \$10.00 per share with warrants to purchase an equal number of common shares at \$12.50 per share on the basis of one new share for each 4 shares held. The company is also registering 30,000 common shares underlying warrants previously issued to some of its stockholders to buy such stock at \$5.00 per share. Net proceeds will be added to the company's general funds; and such increase in working capital will be used in part as follows: \$30,000 in marketing the Dynamitron, the high energy accelerator it manufactures; \$50,000 in expansion of plant and irradiation service facilities; and \$40,000 in the development of a 3 MEV Dynamitron. (43% of the outstanding common stock, and 36% of outstanding warrants are owned by officers and directors, of which Kennard H. Morganstern, president of Radiation Dynamics owns 6,840 shares of stock, or 15%, and warrants for 1,500 shares, or 5%.)

### ATOMIC ENERGY BUSINESS NEWS...

LITHIUM CONCERNS IN LITIGATION: Quebec Lithium Corp. has filed suit to recover from Lithium Corp. of America, Minneapolis, an estimated \$4,477,000 it alleges the U.S. firm owes it for contract damages. Pierre Beauchemin, president of Quebec Lithium, said the suit was the result of refusal of Lithium Corp. to accept delivery, each month until Mar. 1, 1962, of 17,000 units of spodumene concentrate, under terms of contract signed by the two companies March, 1959. (Lithium Corp.'s production at its Bessemer City, N.C., plant had been going almost entirely to the USAEC for its lithium-6 isotope extraction processes. The USAEC has now advised the firm that it will not renew these contracts, expiring Dec. 1959. Without the government contracts, freight costs on raw materials from Quebec Lithium would make production uneconomic. Also, Lithium Corp.'s plant at Bessemer City was built to handle ores, not spodumene concentrates. However, Quebec Lithium had counted on Lithium Corp., to absorb nearly 90% of its total spodumene concentrate output. At announcement of the litigation, Quebec Lithium stock plummeted to an all-time low of \$2.50 on the Canadian exchange.)

NUCLEONIC MARKET SURVEY UNDERWAY: A detailed study of the future requirements of users of nuclear instrumentation is being compiled with a mail questionnaire that Radiation Economics Study Center is sending to business firms. The Study Center, at 44 Brattle St., Cambridge, Mass., says it will use the information as basis of part of a study of the economic potential of the applied radiation industry.

RESEARCH AND DEVELOPMENT CONCERN ADDS RADIOISOTOPE LABORATORY TO ITS FACILITIES: Evans Research and Development Corp., 250 E. 43rd St., New York, N.Y., has installed a radioisotope laboratory for basic research and work on industrial applications of radioisotopes.

ATOMIC ENERGY CONTRACT NEWS...

FEED MATERIALS FACILITY: Contract of Mallinckrodt Chemical Works for operation and management of the USAEC's feed materials facilities in the St. Louis, Mo., area has been extended to June 30, 1964 by the Commission. The new contract is similar to Mallinckrodt's current USAEC contract which was to expire Dec. 31, 1959. Under the contract, the USAEC provides the working capital and cost of operation and pays Mallinckrodt a fixed annual fee for operation. Mallinckrodt presently operates the new USAEC feed materials plant at Weldon Spring, Mo., which is used for production of uranium salts and uranium metal through refining of ores and concentrates from the U. S. and abroad. (Mallinckrodt was the first U.S. company to begin commercial processing of enriched uranium hexafluoride to uranium materials suitable for use as nuclear fuels. Operations began September, 1958, at its new plant at Hematite, Mo. Last week the company completed shipment of almost 200,000-lbs. of enriched uranium dioxide powder for the Commonwealth Edison plant being built at Dresden, Ill. The material went to General Electric Co's atomic power equipment department, San Jose, Calif., where it is being pelletized and canned in zirconium tubes.)

PLASMA RESEARCH: Grants of \$500,000 to Massachusetts Institute of Technology and \$500,000 to Harvard University have been made by the National Science Foundation for research on electrical plasmas. The M.I.T. and Harvard studies will be independent of each other, but a regular interchange of information is planned by those working on the projects. (The research may eventually have specific accomplishments in relation to such subjects as fusion power; propulsion of space vehicles; etc.)

CYCLOTRON FACILITIES: Contract in amount of \$430,000 has been awarded by the USAEC to A. M. Hunter & Son, Irvington, N.J., for construction of facilities associated with the Nevis cyclotron at Irving-on-Hudson N.Y. The cyclotron there, which is owned by the Office of Naval Research, and operated by Columbia University, is heavily committed to USAEC-financed work. On completion, the 15,000 sq. ft. building, which will house laboratories and an experimental machine shop, will be the property of the USAEC.

NUCLEAR POWER STUDY: Kaiser Engineers, division of Henry J. Kaiser Co., Oakland, Calif., has received USAEC contract to study potential use of nuclear power at remote military installations. Estimated cost of the study is \$515,000. Under the contract, Kaiser will compare cost of conventional power with the estimated cost of nuclear power for military installations for which new generating capacity of 5,000-40,000 electrical kw is projected for the period 1963-1970; designate the type of reactor which apparently would be most suitable for each installation; and recommend the most economic method of plant construction.

SMALL NUCLEAR POWER PLANT: Gibbs & Hill, Inc., New York, N.Y., have been awarded USAEC contract to provide design services for a small pressurized water nuclear power plant planned by the Commission. The firm was selected from among 13 that had submitted proposals for the project. Services to be provided include conceptual design for the steam producing portion of the plant, with an option for detailed design of the nuclear portion, excluding equipment design of the reactor, which will be procured separately. (Proposals had previously been invited from cooperatives and public power organizations to participate in the project. The proposed plant will be designed to produce 16,500 kw of electrical power, and with an installation of an optional conventional superheater, its capacity could be increased to 22,000 kw.)

PHYSICS STUDIES: First nuclear research contract to be awarded an industrial laboratory by the physics branch of the USAEC's division of research has been awarded Lockheed Aircraft Corp. The USAEC support, which will augment fundamental nuclear physics research by Lockheed people, is for basic studies on the properties of atomic nuclei through an experimental program using the 3½ million electron-volt Van de Graaff positive ion accelerator at Lockheed's scientific research laboratory at Palo Alto, Calif.

NUCLEAR TEST REACTOR: Proposal of Combustion Engineering, Inc., Windsor, Conn., for performance of conceptual design and operation of a nuclear test reactor, has been selected by the USAEC from 11 such proposals as a basis for contract negotiations. The proposed reactor, with power up to 60,000 thermal kw, would be built at the USAEC's national reactor testing station near Idaho Falls, Idaho. A cost-plus-fixed-fee type contract will be negotiated with Combustion Engineering.

NEW PRODUCTS, PROCESSES, SERVICES...for nuclear lab & plant...

NEW PRODUCTS: New low-cost window gas flow counter, with low-background, capable of detecting soft beta radiation in the Geiger or proportional region, is now offered by this manufacturer as model WFC-167. It consists of a shielded cylindrical detecting chamber supported on a plastic mount that offers 5 different counting positions with a slide-in adapter that accepts 1" and 1½" samples. --Atomic Accessories, Inc., Bellerose 26, N.Y.

Decimal scaler, model 49-19, has 1 microsecond resolving time. Unit includes Argonne type A61 linear amplifier, precision discriminator and fixed mercury pulse generator, as well as an electrometer type high voltage supply continuously variable between 500 and 5,000 volts. -- Radiation Instrument Development Laboratory, Inc., 5727 So. Halsted St., Chicago 21, Ill.

Tritium-monitoring instrument measures and records radioactivity in air and sounds an alarm when safe limits are exceeded. The instrument consists of two units: a sampling device and a control device. They are connected by a cable which may be up to 50-ft. in length. --Applied Physics Corp., Monrovia, Calif.

Alpha proportional counter, for detection and measurement of alpha particles in the presence of intense beta radiations, is believed to be the only modified Simpson type offered commercially. It is a 2 geometry instrument with a cylindrical chamber. The anode, a 0.002-in. stainless steel wire extending the length of the chamber, is said to provide a nearly symmetrical electrical field in the chamber which results in uniform alpha pulse distributions. Commercial methane is used as the counting gas.-- Nuclear-Ohio, Inc., Bay Village, Ohio.

Beta gamma hand and shoe monitor, model HSM-10, is a personnel monitor especially designed to provide completely automatic detection and measurement of beta-gamma contamination on the back and palm of each hand and the bottom surfaces of both shoes. Use of three switches in each of the hand and shoe channels provides as many as 15 different scaling factors. An external probe on a 5-ft. self-coiling cable is furnished for checking clothing, face, etc. --Technical Associates, 140 W. Providencia Ave., Burbank, Calif.

PRODUCT NEWS: The British firm Nuclear Research Applications, Ltd., Emefco House, Bell St., Reigate, has introduced two new remotely-operated isotope manipulators. Type T4, which has a remote controlled rotating head and ratchet-type holder, is now available in standard lengths of 8-ft.; 10-ft.; and 14-ft.; it had previously been available only in 6-ft. lengths. Type 6R, which operates through a lead wall, now has a 370 deg. rotating head and a 45 deg. offset angle of the holding tool.

SERVICES: First commercial radiation monitoring and tracer services in England has been inaugurated by Ekco Electronics, Ltd., Southend-on-Sea. Three main categories are offered. Group one includes such services as site surveys, testing sources of radiation on the premises of users, etc. This will assist companies to meet requirements of the impending Special Regulations (Ionizing Radiations) Factories. Group two will be a specialized service for public health authorities: measurement of radioactivity in air, water, sewage, etc. Group three will be a service for industrial and scientific research, and allow carrying out tracer experiments without purchasing necessary equipment.

MANUFACTURERS' SALES: Triga type nuclear reactors of 10 kw capacity have been sold by General Atomic division of General Dynamics Corp. to the University of Illinois and Cornell University. At Illinois, the reactor will be installed in the university's Nuclear Research and Training Center. Total cost of this Center, including the cost of the reactor itself, will be \$357,000; a USAEC grant of \$150,000 has been given the University toward the cost of the project. The Cornell Triga will be installed at the university's new Center for Nuclear Technology, other facilities of which will include a zero power research core to be furnished by Curtiss-Wright, as well as a gamma radiation cell. The entire Cornell center will cost some \$1,550,000, part of which will be borne by a National Science Foundation grant of \$475,000. The USAEC has committed \$150,000 toward the project.

RADIATION NOTES: Measuring the time for injected radioactive serum albumen to go from the heart to the liver, a new technique helps diagnose cirrhosis and other forms of liver disease. The technique, developed at the University of California Medical Center, Los Angeles, by Dr. Ismael Mena, and associates, requires two external scintillation counters. One is placed over the heart, the other over the liver. Decreased rate of flow of the blood containing the radioactive material, into the liver, is a reliable indication of the degree of liver damage.

ATOMIC ENERGY PATENT & TRADE-MARK DIGEST...

PATENTS ISSUED August 25, 1959 to GOVERNMENTAL ORGANIZATIONS: (1) Apparatus for handling mixtures of solid materials. J. P. Hubbell, inventor. No. 2,901,007 assigned to USAEC. (2) Electronic multiplier circuit. R. E. Thomas, inventor. No. 2,901,172 assigned to USAEC. (3) Separation of plutonium from water insoluble fluorides. A. G. Maddock, F. Smith, inventors. No. 2,901,313 assigned to USAEC. (4) Removal of uranium from organic liquids. S. P. Vavalides, inventor. No. 2,901,314 assigned to USAEC. (5) Process of oxidizing plutonium. C. D. Coryell, inventor. No. 2,901,315 assigned to USAEC. (6) Dissolution of aluminum jackets from uranium cores. J. H. Peterson, inventor. No. 2,901,343 assigned to USAEC. (7) Plutonium-cerium-cobalt and plutonium-cerium-nickel alloys. A. S. Coffinberry, inventor. No. 2,901,345 assigned to USAEC. (8) Nickel-chromium-germanium alloys for stainless steel brazing. J. A. McGurty, E. A. Funston, inventors. No. 2,901,347 assigned to USAEC. (9) Coating method. R. G. Townsend, inventor. No. 2,901,408 assigned to USAEC. (10) Salicylate process for thorium separation from rare earths. G. A. Cowan, inventor. No. 2,901,496 assigned to USAEC. (11) Detector for modulated and unmodulated signals. H. H. Patterson, G. H. Webber, inventors. No. 2,901,613 assigned to USAEC. (12) Calutron receiver. S. W. Barnes, inventor. No. 2,901,617 assigned to USAEC. (13) Calutron. L. R. Ludwig, inventor. No. 2,901,618 assigned to USAEC. (14) Calutron ion source slit cleaner. A. M. Starr, inventor. No. 2,901,619 assigned to USAEC. (15) Isotope separating apparatus control. S. W. Barnes, inventor. No. 2,901,620 assigned to USAEC. (16) Calutron face plate. W. M. Brobeck, inventor. No. 2,901,621 assigned to USAEC. (17) Calutron control device. L. W. Baldwin, inventor. No. 2,901,622 assigned to USAEC. (18) Vapor valve. L. F. Wouters, inventor. No. 2,901,623 assigned to USAEC. (19) Mass spectrometry. A. O. C. Nier, inventor. No. 2,901,624 assigned to USAEC. (20) Ion source. W. A. S. Lamb, inventor. No. 2,901,628 assigned to USAEC.

PATENTS ISSUED September 1, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Thermally insulated scintillation counter. M. C. Ferre, inventor. No. 2,902,603 assigned to Schlumberger Well Surveying Corp., Houston, Tex. (2) Scintillation converter. G. C. Baldwin, inventor. No. 2,902,604 assigned to General Electric Co. (3) Adaptation of a high energy electron accelerator as a neutron source. G. C. Baldwin, E. R. Gaertner, M. L. Yeater, inventors. No. 2,902,613 assigned to General Electric Co. (4) Production of titanium and zirconium by reduction of their sulfides. W. Juda, inventor. No. 2,902,360 assigned to Ionics, Inc.

PATENTS ISSUED September 1, 1959 to GOVERNMENTAL ORGANIZATIONS: (1) Separation of thorium from uranium. R.W. Bane, inventor. No. 2,902,338 assigned to USAEC. (2) Recovery of plutonium from aqueous solutions. E. J. Reber, inventor. No. 2,902,339 assigned to USAEC. (3) Chemical method of treating fissionable material. C. M. Olson, inventor. No. 2,902,340 assigned to USAEC. (4) Uranium-tantalum alloy. R. L. Reed, inventor. No. 2,902,361 assigned to USAEC. (5) Plutonium-uranium alloy. F. W. Schonfeld, A. S. Coffinberry, inventors. No. 2,902,362 assigned to USAEC. (6) Slip casting method. A. G. Allison, inventor. No. 2,902,380 assigned to USAEC. (7) Purification of uranium fuels. L. W. Niedrach, A. C. Glamm, inventors. No. 2,902,415 assigned to USAEC. (8) Nuclear reactor fuel rod assembly. E. Hutter, inventor. No. 2,902,422 assigned to USAEC. (9) Nuclear reactor producing thermoelectric power. E. A. Luebke, L. B. Vandenburg, inventors. No. 2,902,423 assigned to USAEC. (10) Homogeneous nuclear power reactor. L. D. P. King, inventor. No. 2,902,424 assigned to USAEC. (11) Cooling and moderating nuclear reactors. M. Kosmin, M. McEwen, inventors. No. 2,902,425 assigned to USAEC. (12) Recovery of metal values from aqueous solutions by solvent extraction. R. L. Moore, inventor. No. 2,902,454 assigned to USAEC. (13) Recovery of uranium by secondary xanthate complexing. O. K. Neville, inventor. No. 2,902,503 assigned to USAEC. (14) Method of making composite fuel elements. R. A. Noland, C. C. Stone, inventors. No. 2,902,590 assigned to USAEC. (15) Dosimeter. S. Wallack, inventor. No. 2,902,605 assigned to Secretary of the Army.

TRADE-MARK NEWS: Mark "Radosisten", filed under SN 65,061 Dec. 30, 1958, is to be issued C. H. Boehringer Sohn, Ingelheim am Rhein, Germany, for medicated preparation for the treatment of radiation burn.

Sincerely,

The Staff,  
ATOMIC ENERGY NEWSLETTER

September 15, 1959